

# MONTHLY WEATHER REVIEW.

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## INTRODUCTION.

This REVIEW contains a general summary of the meteorological conditions which prevailed over the United States and Canada during April, 1884, based upon the reports from the regular and voluntary observers of the Signal Service and from co-operating state weather services.

Descriptions of the storms which occurred over the north Atlantic ocean during the month are also given and their approximate paths shown on chart i.

April has not been especially noted for unusual meteorological phenomena.

Local storms were of less severity and frequency than those of the preceding months.

The high stage of water in the lower Mississippi river has continued, and at the close of the month the river was above the danger-line in the vicinity of Vicksburg, Mississippi, and at points southward.

The month was colder than the average over nearly the whole country, the exceptions being New England, northern plateau, and north Pacific coast region, where it was slightly warmer than usual. The regions of greatest departure below the normal temperature were the middle slope, southern plateau, and upper Mississippi valley, where the deficiencies varied from 3° to 4°.

The monthly precipitation was excessive in New England, the upper lake region, and from the lower Missouri and west Gulf states to the Pacific coast. It was less than the average over the region from Idaho to Minnesota, in the upper Mississippi valley, and from the lower lake region and middle Atlantic states southward to the Gulf.

The temperature and rainfall observations in the cotton districts were resumed April 1st. A table of means for April, 1884, and for the same month of the two preceding years has been prepared and is published in this REVIEW.

The following changes have been made in the numbers of the charts accompanying this REVIEW: chart ii. (ocean storm-tracks and limits of ice) is discontinued, and a new chart, numbered i., is substituted, showing the tracks of low-barometer areas, together with the ocean storm tracks and the limit of the ice region.

The charts heretofore numbered iii. (isobars, isotherms, and winds) and iv. (precipitation) are changed to numbers ii. and iii., respectively.

In the preparation of this REVIEW the following data, received up to May 20th, 1884, have been used, viz.: the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and twenty-two Signal Service stations and fifteen Canadian stations, as telegraphed to this office; one hundred and sixty monthly

journals, and one hundred and fifty-four monthly means from the former, and fifteen monthly means from the latter; two hundred and sixty-three monthly registers from voluntary observers; fifty-one monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports, through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs, furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the local weather services of Alabama, Georgia, Illinois, Indiana, Louisiana, Missouri, Nebraska, and Tennessee, and of the Central Pacific railway company; trustworthy newspaper extracts; and special reports.

## ATMOSPHERIC PRESSURE.

[Expressed in inches and hundredths.]

The distribution of mean atmospheric pressure for April, 1884, determined from the tri-daily telegraphic observations of the Signal Service, is shown by the isobarometric lines on chart ii. An area of barometric maxima extends from central Montana to Lake Michigan, where the mean pressures range from 30.0 to 30.07. Along the western coast of Florida and on the Pacific coast the barometric means vary from 30.0 to 30.03. The mean pressure of the month is least in New England and the Canadian maritime provinces, where the means vary from 29.75 to 29.85. Over an area including parts of Colorado, New Mexico, Arizona, and Utah the mean pressure is below 29.9; elsewhere the means vary from 29.9 to 29.99.

The mean pressure for April compared with that for the preceding month shows an increase ranging from .01 to .03 in the north and middle Pacific coast regions and in northern Minnesota. In all other districts a decrease occurs. West of the Mississippi river the deficiencies vary from .01 to .08, while to the eastward they increase to from .10 to .13 from the lower lake region to the south Atlantic coast, and to from .15 to .18 in the middle Atlantic states and New England.

## DEPARTURES FROM THE NORMAL VALUES FOR THE MONTH.

In the northern and middle slopes, upper Missouri valley, Minnesota, and over Lake Superior the mean pressure for April varies from .01 to .04 above the normal. In all other districts it is below the normal, the deficiencies being greatest on the Atlantic coast, where they vary from .10 to .15. On the Pacific coast, in southern Arizona and in the east Gulf states the deficiencies range from .05 to .08; in the upper Mississippi and lower Missouri valleys, southern slope and west Gulf states they vary from .01 to .04.

## BAROMETRIC RANGES.

The barometric ranges were greatest in the upper lake region and in Maine, where they exceeded 1.25; they were least in southern California, Arizona, and Florida, where they were less than .50. The extreme ranges are: smallest, .33 and .36 at Forts Grant and Apache, Arizona, respectively; greatest, 1.35 at Eastport, Maine, and 1.40 at Alpena, Michigan.

In the several districts the barometric ranges varied as follows:

*New England.*—From 1.05 at New Haven, Connecticut, to 1.35 at Eastport, Maine.

*Middle Atlantic states.*—From .95 at Lynchburg, Virginia, to 1.08 at Delaware Breakwater, Delaware; Barnegat City, New Jersey, and Cape Henry, Virginia.

*South Atlantic states.*—From .54 at Jacksonville, Florida, to 1.02 at Kitty Hawk, North Carolina.

*Florida peninsula.*—From .45 at Cedar Keys to .57 at Sanford.

*East Gulf states.*—From .51 at Mobile, Alabama, to .71 at Vicksburg, Mississippi.

*Western Gulf states.*—From .64 at Galveston, Texas, to .74 at Little Rock, Arkansas.

*Rio Grande valley.*—From .63 at Rio Grande City, Texas, to .64 at Brownsville, Texas.

*Tennessee.*—From .59 at Chattanooga to .78 at Memphis.

*Ohio valley.*—From .80 at Louisville, Kentucky, to 1.00 at Pittsburg, Pennsylvania.

*Lower lake region.*—From 1.06 at Cleveland, Ohio, to 1.19 at Detroit, Michigan.

*Upper lake region.*—From 1.09 at Chicago, Illinois, to 1.40 at Alpena, Michigan.

*Extreme northwest.*—From 1.03 at Fort Buford, Dakota, to 1.24 at Bismarck, Dakota.

*Upper Mississippi valley.*—From .78 at Cairo, Illinois, to 1.28 at Saint Paul, Minnesota.

*Missouri valley.*—From .92 at Leavenworth, Kansas, to 1.13 at Fort Bennett, Dakota.

*Northern slope.*—From .67 at Helena, Montana, to .91 at North Platte, Nebraska.

*Middle slope.*—From .55 on the summit of Pike's Peak, Colorado, to .88 at West Las Animas, Colorado.

*Southern slope.*—From .52 at Fort Davis, Texas, to .67 at Fort Concho, Texas.

*Southern plateau.*—From .33 at Fort Grant, Arizona, to .53 at Prescott, Arizona.

*Middle plateau.*—From .70 at Salt Lake City, Utah.

*Northern plateau.*—From .65 at Boise City, Idaho, to .77 at Lewiston, Idaho.

*North Pacific coast region.*—From .74 at Portland, Oregon, to .77 at Roseburg, Oregon.

*Middle Pacific coast region.*—From .60 at Red Bluff, California, to .66 at San Francisco, California.

*South Pacific coast region.*—From .39 at San Diego, California, to .52 at Yuma, Arizona.

#### AREAS OF HIGH BAROMETER.

Six areas of high barometer have appeared within or near the limits of the stations of observation during the month. Three of these areas probably passed from the Pacific coast eastward over the Mississippi valley; two appeared in the extreme northwest, and passed eastward, north of the lake region, and one apparently passed northward along the coast of California, and then disappeared to the westward.

I.—At the 7 a. m. report of the 1st the barometer was generally above the normal on the Pacific coast, and during the succeeding twenty-four hours these conditions extended over the Rocky mountain regions, the pressure becoming greatest from Texas northward to Dakota, attended by freezing, fair weather, and northerly winds. This area moved southeastward to eastern Kansas during the 2d, causing a "norther" on the Texas coast, the wind attaining a maximum velocity of 40 miles per hour at Indianola. By the morning of the 4th the centre had advanced to the lower Mississippi valley, where the barometer was 30.19, showing a decline of pressure at the centre, while the barometer had risen at eastern stations. The winds shifted to easterly in the west Gulf states, with increasing force during the 4th, and a severe disturbance developed on the Texas coast, which caused this area to disappear before reaching the Atlantic coast.

II.—This area was first observed on the Pacific coast west of Oregon on the morning of the 3d. The morning report of the 4th placed the centre of the area north of Montana, the barometer being about .20 above the normal from Manitoba westward

to the north Pacific coast. This area remained east of the Rocky mountains, and central in the extreme northwest from the 4th until the 10th the barometer ranging from 30.20 to 30.40. On the afternoon of the 10th it extended over the Missouri valley from Manitoba, and continued its southeasterly course over the central Mississippi valley, causing cool, fair weather and light frosts as far south as the northern portion of the Gulf states on the 10th and 11th. During the 11th this area moved directly eastward over the Ohio valley, and on the morning of the 12th it had reached the southern portion of the middle Atlantic states. The pressure remained above the normal on the middle Atlantic coast during the 13th, while a secondary area of high barometer formed to the north of the lower lake region. On the 14th the centre of greatest pressure again passed to the middle Atlantic coast, and from this point the course of this area was to the northeast, the pressure increasing as it moved over the coast line northeast of New England. When last observed on the 18th the centre apparently reached the fiftieth parallel, north of Sidney. This area was traced from the Pacific coast, and was sufficiently well-defined to render it possible to trace its movements from the tri-daily reports from the 3d until the 18th.

III.—There was a slight increase of pressure on the afternoon of the 14th in the region north of Montana, which indicated the advance of an area of high barometer from the northward. The morning report of the 15th exhibited a well-defined low area in the upper lake region—barometer 29.23—while this area was central north of Manitoba, where the barometer was 30.12 and the temperature 16°. During the 16th and 17th it passed over the upper lake region, with but slight energy, and then disappeared to the northeast, apparently joining high area II., which was at that time moving northward over the Atlantic.

IV.—The barometer rose rapidly during the night of the 17th at stations north of Montana, and the temperature fell from 54° to 25°, attended by heavy snow. The 7 a. m. report of the 18th indicated the advance of a cold wave from the extreme northwest. Light snow and freezing weather was reported from Colorado northeastward to Minnesota, and the barometer had risen to 30.59 north of Dakota at midnight of the 18th. The maximum reading of the barometer occurring during the month was observed as the area passed eastward over Manitoba during the 19th and 20th. On the last-named date the barometer was above 30.7 at Fort Garry, and the temperature was below 20°. This area extended eastward to the Saint Lawrence valley, while the centre remained north of Lake Superior during the 21st, 22d, and 23d. The pressure gradually declined with an apparent west or northwest movement after the development of the depression in the Southern states immediately to the south of this area. It disappeared on the 24th as a well-defined high area, although the barometer was above the normal in the Mississippi and Missouri valleys and upper lake region.

V.—This area was at no time well defined, but the reports from the Pacific coast from the 23d until the 26th indicated that a high area moved northward west of, and near, the coast line. After reaching the Oregon coast, apparently its course changed to the southwest, and it disappeared, followed by general rains as far south as central California.

VI.—On the morning of the 28th this area was observed in the region northwest of Lake Superior, and the succeeding report indicated that it was moving in a southeasterly direction. It extended over the lake region during the 29th, but disappeared rapidly in advance of the well-marked depression which was then central in Dakota. After passing to the upper Saint Lawrence valley the direction of the movement changed to the northeast, and at the last report of the month the pressure had fallen to 30.16 near the centre, which was then near Quebec.

#### AREAS OF LOW BAROMETER.

Nine areas of low barometer have been traced over the territory included within the limits of the stations of observation.

Five of these areas passed over western Kansas and eastern Colorado; one passed from the Pacific coast eastward north of Montana; two passed over the middle Atlantic and New England coasts; two passed eastward over the south Atlantic coast, and two followed the course of the Saint Lawrence valley. Several small areas, which have not been traced as separate disturbances, developed within the limits of the stations. These were usually secondary depressions which attended well marked disturbances traced as storm-centres.

The following table gives the latitude and longitude in which the several depressions were first and last observed and the average hourly velocity of each depression.

Areas of low barometer.	First observed.		Last observed.		Average velocity in miles per hour.
	Lat. N.	Long. W.	Lat. N.	Long. W.	
No. I.....	35 00	102 00	43 00	62 00	20.0
II.....	26 00	98 00	29 00	80 00	34.5
III.....	39 00	75 00	44 00	00 00	22.5
IV.....	39 00	103 00	47 00	76 00	17.5
V.....	45 00	112 00	32 00	97 00	18.5
VI.....	26 00	100 00	38 00	84 00	*16.0
			33 00	78 00	
VII.....	53 00	117 00	53 00	104 00	14.0
VIII.....	39 00	102 00	50 00	00 00	22.0
IX.....	39 00	102 00	49 30	89 00	21.1
Mean hourly velocity.....					20.7

\* Average velocity before separating.

I.—This storm was well defined as a disturbance central in eastern Colorado on the last day of the preceding month. It increased in energy and moved slightly north of east during the 1st, passing over the central valley as an elliptical area enclosed by isobars of 29.5 to 29.8, the major axis of the ellipse being parallel to the course of the storm. As the storm moved eastward of the Mississippi river violent gales occurred in the lake region, general rains prevailed in the southern quadrants of the storm, and heavy snows were reported in the northern portion of the lake region. Violent local storms also occurred in the southern states on the night of the 1st, when the centre of this disturbance was passing eastward over the Ohio valley. The barometer continued to fall at the centre as the storm approached the Atlantic coast, and when the centre had reached the New Jersey coast on the afternoon of the 2d it had fallen to 29.11 at Barnegat City, and 29.14 at New York City, attended by northerly winds ranging from 30 to 40 miles per hour at stations on the coast between Cape Hatteras and Boston. This storm increased in violence after reaching the New England coast, and during the 3d an easterly gale occurred at Eastport, the maximum velocity being 50 miles per hour. This storm was retarded in its easterly course after passing the longitude of Halifax, and it apparently moved westward to Yarmouth during the night of the 3d, the barometer being lowest and reading 28.73 at Yarmouth on the morning of the 4th. Dangerous northwest winds continued on the coast north of Cape Hatteras on the 4th as the centre of the disturbance disappeared to the eastward over the Atlantic.

II.—This depression formed south of Texas immediately after the advance of a high area over the Gulf states. The winds shifted to easterly on the west Gulf coast during the night of the 4th, reaching a velocity of 34 miles at Indianola, and afterwards 44 miles from the northwest at the same station, when the centre of the disturbance was to the east of that station. Very heavy rain fell at all Gulf stations as the storm moved eastward almost parallel with the coast. Strong gales occurred in the Gulf on the 5th and 6th, but the storm lost energy as it passed over northern Florida, and when it was last observed it could scarcely be defined as a cyclonic disturbance.

III.—The 3 p. m. and midnight reports of the 8th indicated the partial development of a low area on the middle Atlantic coast, central near Norfolk, and also a slight depression in the lower lake region. These conditions continued until the morning of the 9th, when the disturbance on the middle Atlantic

coast moved northward to near Cape May, and light snows and rains prevailed in the middle Atlantic states and lake region. This storm, although contracted, passed along the southern New England coast, developing considerable energy, the wind-velocities ranging from 30 to 52 miles per hour, the strongest winds being in the western quadrants. The centre of disturbance passed northeastward from New England, and it was last observed near Halifax at midnight of the 10th.

IV.—This depression probably developed on the Pacific coast, as the general barometric condition during the 11th and 12th indicated the advance of an extended area of depression over the Rocky mountain region and British America. The centre could not be definitely located until the afternoon of the 13th, when it was in eastern Colorado. The disturbance moved first to the northeast over Nebraska and Iowa, causing general rains in the central valleys during the 14th. A secondary depression formed in the lower Ohio valley at midnight of the 14th, while the main centre remained in the upper Mississippi valley. The rains were specially heavy in the Southern states and near the track of the principal depression in the lake region. The storm increased in violence as it passed over the upper lake region, the barometer falling to 29.2, when the centre was near Port Huron, Michigan. The rains extended over the Atlantic coast districts on the 15th, followed by clearing weather on the 16th, when this depression disappeared to the northeast in the Saint Lawrence valley.

V.—On the 14th general rains prevailed on the Pacific coast, accompanied by low barometer, and the pressure declined in the Rocky mountain districts on the 15th, the centre of depression being near Eagle Rock, Idaho, at midnight of the 15th. The course was not clearly defined, as this disturbance disappeared on the eastern slope of the Rocky mountains without passing eastward. It moved southeastward during the 16th and 17th over Utah, Colorado, and western Kansas, and disappeared in the Indian Territory at 3 p. m. of the 18th, while the succeeding area, number vi., was forming in southern Texas.

VI.—This disturbance was probably a secondary depression following the disappearance of low area v., but the afternoon report of the 18th exhibited these depressions, one decreasing in energy in the Indian Territory and the other slowly developing in extreme southern Texas. This storm moved eastward over the western Gulf during the 19th, and as the cold air from the high area, which then extended over the eastern slope districts, reached the Gulf coast, this storm passed rapidly to the east, followed by a "norther" which caused a maximum velocity of fifty-six miles at Indianola. After reaching the mouth of the Mississippi river, the course of this storm changed to the northward, and it passed over the eastern Gulf states during the 21st, causing general rain in the Southern states. At midnight of the 21st, two areas were formed, one on the south Atlantic coast, which disappeared east of Charleston on the 22d, causing no marked disturbance, and the other in central Tennessee. This last depression moved very slowly northward attended by general rains in the Ohio valley and Tennessee until the morning of the 23d, when it was last observed as central in eastern Kentucky.

VII.—This depression was at no time within the limits of the Signal Service stations. It probably passed from the north Pacific coast region to British Columbia, where it was first observed on the morning of the 24th. It passed directly east, north of the boundary of the United States and disappeared north of Dakota on the 25th.

VIII.—On the morning of the 25th this disturbance was forming in eastern Colorado, while the pressure was below the normal at the northern stations. This low area followed the preceding one and probably resulted from the same general condition. After moving to the southward for eight hours on the 25th, it passed directly to the northeast over the Missouri and Mississippi valleys on the 26th as a well-marked cyclonic disturbance, which increased in energy as it approached Lake Superior. The barometer fell to 29.29 at Saint

Paul as the centre passed near that station on the 27th, and the rains were heavy in the northwest. Dangerous winds occurred at stations in the lake region, the highest velocities occurring after the centre had passed to the east of Lake Superior. At Milwaukee the wind attained a velocity of fifty-three miles per hour from the west during the night of the 27th. This storm lost energy rapidly after the center passed to the east of the lake region, and when it was last observed in the lower Saint Lawrence valley on the night of the 28th, the pressure had increased to 29.90 at the centre of disturbance, and no dangerous winds were reported.

IX.—An extended area of low barometer was central in Utah on the 28th, and this depression probably originated to the westward of the Rocky mountains on the 27th. On the 29th it passed almost directly north over Dakota and it was central near the northern boundary of that territory on the morning of the 30th. The last high area observed during the month was at that time immediately to the northeast of this depression, and the course of the low area indicated that the abnormal direction of movement was due to the high area. After the disappearance of the high area on the 30th, the course of ix. changed to easterly and was central north of Lake Superior at the close of the month.

#### NORTH ATLANTIC STORMS DURING APRIL, 1884.

[Pressure expressed in inches and in millimetres; wind-force by scale of 0–10.]

The tracks of the storms appearing in the north Atlantic ocean during the month have been approximately determined from reports of observations furnished by agents and captains of ocean steamships and sailing vessels, and from other miscellaneous data received at this office up to May 22, 1884.

The observations used are in general simultaneous, being taken each day at 7 a. m. Washington, or 12h. 8m. p. m. Greenwich, mean time.

Of the seven depressions charted, only two, numbers, iii. and iv., are apparently continuations of storms which passed over the north American continent. Numbers i. and ii. are extensions of the tracks of storms which were traced on the chart for the preceding month (March). Numbers v. and vii. are depressions which originated near the coasts of the United States, and which apparently filled up before passing to the eastward of the banks. Number vi. developed near the twenty-fifth meridian and moved towards the British coasts. The first half of the month was characterized by moderate to strong gales and low barometer, the area of low pressures being apparently very extensive and reaching southward to the Azores. During the last half of the month an area of high pressures appears to have spread westward and southward, thus checking the eastward movement of depressions iv., v. and vii. During this period moderate breezes and fine weather prevailed over the Atlantic. The storms traced during the month have moved somewhat south of the usual track of Atlantic storms. That traced as number iii. was notable for the depth of the atmospheric depression, the barometer having fallen to 28.1 (713.7), and for its long duration and storm energy.

The following are descriptions of the depressions charted:

1.—This was a continuation of low area ix. of chart ii. for March. At the close of that month the disturbance was central off the southwestern coast of Ireland; from April 1st to 4th it remained in the region between W. 10° and 15°, and near the fiftieth parallel, the barometer near the centre of depression reading about 29.0 (736.6). On the 5th the centre of disturbance was situated very near the west coast of Ireland, the pressure near the centre having fallen below 29.0 (736.6); the s. s. "Circassian," Lieutenant W. H. Smith, R. N. R., commanding, reported: 5th, in N. 55° 0', W. 12° 30', barometer 28.93 (734.8), wind ne., force 4; bark "Esmeralda," J. C. Anderson, jr., commanding, in N. 55° 23', W. 7° 41', had barometer 28.82 (732.0), wind s., force 2; while vessels between N. 51° and 47°, and W. 13° and 20°, had westerly and northwesterly winds, with pressure varying from 29.0 (736.0) to 29.3 (737.3).

During the prevalence of this depression, the weather was cloudy or rainy, and the wind remained light or moderate, except in the western quadrants on the 1st and 2d, when it attained the force of a moderate gale (6-7.)

2.—This was a continuation of the disturbance traced as low area viii. on the chart for the preceding month. At the close of March, the depression was apparently near the southern edge of the Banks of Newfoundland, with moderate westerly winds in its rear and light southerly winds to the eastward. On April 1st, there was no material change either in the position of the centre of disturbance or in pressure, which still remained about 29.3, (744.2); the disturbance appears to have moved southward on the 2d, attended by moderate winds, and by the 3d, the region of low barometer was shown near N. 40°, W. 40°, where the readings ranged from 29.66, (753.4) to 29.8, (756.9). Vessels on the forty-third parallel and between W. 45° and 40° had easterly and northeasterly winds, of moderate force, and fair weather, and those to the eastward of W. 40° and between N. 40° and 43°, had moderate southerly breezes. By the 4th, this disturbance probably became merged on the large atmospheric depression (number i.) which extended apparently from the Azores northeastward to the British Isles and western France.

3.—This is a continuation of the disturbance charted and described as low-area i., under "areas of low barometer" in this REVIEW. During its passage northeastward along the coast of the United States this depression displayed great storm-energy; the barometer near the centre of disturbance fell below 28.8 (731.5), and moderate southwesterly to very heavy northwesterly gales prevailed off the coast and at sea, the influence of the disturbance extending southward to about N. 30° and eastward to the sixtieth meridian. Many sailing vessels sustained loss of sails and spars and were driven off to the latitude of the Bermudas.

On the 2d Captain A. Cann, commanding the ship "Tsernoga," in about N. 36° 41', W. 68° 01' reported: "barometer fell from 29.65 (753.1) to 29.15 (740.4) in five hours, with steadily increasing sw. wind; at 6 p. m., ship under lower topsails when a tornado squall suddenly appeared, and in five minutes struck the ship taking the new topsails clean from the bolt-rope; it then steadied to a hard gale, gradually hauling to w. with hail-squalls and very heavy cross sea. April 3d (N. 37° 44', W. 67° 00'), weather the same, hard gale veering from w. to wnw., sea between thirty and forty feet high and running very swiftly; 4th (N. 36° 30', W. 67° 0'), weather worse and squalls more frequent, barometer rising steadily."

The s. s. "Orinoco," W. J. Frazer, commanding, between N. 38° 30', W. 71° 21', and N. 35° 15', W. 67° 20', on the 4th and 5th, had heavy nw. gales throughout, with very high sea.

The s. s. "Madrid" came under the influence of the disturbance on the 3d; Captain M. Garson, commanding that vessel, reported: "3d, in N. 35° 11', W. 59° 10', moderate ssw. gale began at 6 a. m., and veered to w. at 7 p. m., in N. 35° 11', W. 60° 44', barometer 29.42 (747.2)." During the 4th, 5th, and 6th, the "Madrid" had w. by s. to wnw. gales of force 7 to 8, moderating on the 6th to nw., force 3, in about N. 35° 20', W. 65° 5'.

The schooner "Geo. R. Congdon," in 39° 5', W. 72° 20', on the 3d, had a heavy wnw. gale, and high cross sea, sleet, and hail, lasting until the 6th; on the afternoon of the 5th, the vessel had decks swept of everything movable, and when the gale abated the ship's position was found to be N. 37° 50', W. 66° 03'.

During these dates the centre of the disturbance where the pressure was about 28.6 (726.4), was situated between the New England coast and the Banks of Newfoundland, its movements being slow and irregular.

The s. s. "Ontario," W. P. Conch, commanding, reported: "on the 3d, in N. 43° 36', W. 69° 30', 3.30 a. m., lowest reading of the barometer 28.52 (724.4), wind from n. to ne., with heavy snow and sleet."

During the 5th and 6th, vessels to the northward of N. 40°